# TECHNICAL REVIEW DOCUMENT for OPERATING PERMIT 010POT231 to be issued to:

Aquila, Inc. – Rocky Ford Station Otero County Source ID 0890004

Prepared December 2001
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Revised February 2002

Revised April 13, 2002 to address name change from WestPlains to Aquila, Inc.

#### I. Purpose

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA and during Public Comment. The conclusions made in the report are based on information provided in the original application submittal of February 26, 2001, e-mail correspondence and telephone conversations with the source. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

The word "credible" as it is used in the term "credible evidence" shall be applied under the provisions of the permit as defined by Colorado and Federal Rules of Evidence.

### **II.** Source Description:

This source is classified as an electric services facility under Standard Industrial Classification 4911. This facility consists of 5 internal combustion engines, each capable of providing 2 MW of power. No. 2 fuel oil is used in the engines as fuel. The engines are used to provide power during periods of peak electrical demand.

There are two (2) 60,000 gal diesel fuel storage tanks used to store No. 2 diesel fuel. Emissions from these tanks are below APEN de minimis levels and are included in Appendix A as insignificant activities.

This facility is located at 14<sup>th</sup> and Walnut Street in Rocky Ford. This facility is located in an area that has been designated as attainment for all criteria pollutants. There are no affected states within 50 miles of this facility and there are no federal class I designated areas within 100 km.

This facility is a major stationary source for the purposes of prevention of significant deterioration (PSD), however, it was constructed prior to the adoption of PSD regulations and the implementation of best available control technology (BACT). This facility is also grandfathered from the Colorado construction permit requirements in Colorado Regulation No. 3, Part B. Based on the information available to the Division and supplied by the application, the Division believes that modifications up to this point have not to triggered PSD review or Colorado construction permit requirements. Emissions at the facility are as follows:

Pollutant	Potential to Emit (tons/yr)	Actual Emissions (tons/yr)
PM	94.4	7.8
PM <sub>10</sub>	94.4	7.8
SO <sub>2</sub> <sup>1</sup>	383	12.1
NO <sub>X</sub>	2,732	189.4
CO	438	20.9
VOC	38	N/A <sup>2</sup>
HAPS	2.2	N/A <sup>2</sup>

<sup>1</sup>potential to emit, for each engine, is based on 0.8 lbs/mmBtu x design heat rate, mmBtu/hr x 8760 hrs/yr

Potential to emit is based on the information identified in the table and the maximum hourly fuel consumption rate, emission factors (either from stack test or AP-42) and 8760 hrs/yr of operation. Actual emissions are based on the APEN submitted by WestPlains on April 13, 2001. Hazardous Air Pollutant (HAP) Emissions, potential to emit, is based on the information in the Title V permit application (design heat rate x AP-42 emission factor x 8760 hrs/yr).

The source indicated in their Title V permit application that this facility is not subject to Section 112(r), the Accidental Release Requirements.

These engines are existing small units (commenced operation prior to November 15, 1990, nameplate capacity < 25 MW) and are therefore exempt from the Title IV Acid Rain provisions per ' 72.6(b)(2).

None of the engines are equipped with control devices, therefore the Compliance Assurance Monitoring (CAM) requirements do not apply to these units.

<sup>&</sup>lt;sup>2</sup>Emissions are below reportable levels

#### III. Emission Sources:

The following sources are specifically regulated under terms and conditions of the Operating Permit for this Site.

- A. Units E01 thru E05: GE Electromotive Power, Model No. 16-567D, Serial Nos. 63153, 63154, 63155, 63156 and 63157, Internal Combustion Engines, Each Rated at 21.868 mmBtu/hr and Each Capable of Generating 2 MW of Power. No. 2 Fuel Oil is Used as Fuel in These Engines.
  - 1. Applicable Requirements These engines were first placed in service in September 1964. Based on the information available to the Division and provided by the applicant, these engines have not been modified since then.

The source submitted an application to get a synthetic minor permit on November 18, 1994. The source elected to take emission limitations to avoid the Title V Operating Permit program. In addition, the source also submitted their Title V Operating Permit application in late December 1994, although the Division did not act on this application since the source was obtaining a synthetic minor permit to avoid the Title V program. An initial approval construction permit (94OT647) was issued on April 14, 1995. As required by the construction permit, the source conducted a performance test on April 20 and 21, 1995 to verify emissions. The performance test showed a higher hourly emission rate of  $NO_X$ , than indicated in the initial approval permit and a final approval construction permit was issued on December 9, 1996 with a higher short-term  $NO_X$  emission limit.

On August 24, 2000, the source submitted an application for two modifications to their construction permit. One modification was to be issued as soon as possible to increase permitted emissions of  $NO_X$  to 124.5 tons/yr and the second modification, to be effective by the beginning of 2001, was to increase permitted  $NO_X$  emissions to 225 tons/yr. The requested increase in emissions was necessary as power demand was higher than historical demand. The first modification was issued on August 29, 2000 and the second on November 13, 2000. With the issuance of the first modification, the source was no longer a synthetic minor source for purposes of the Title V program but was a synthetic minor source for the prevention of significant deterioration (PSD) program.

On December 26, 2000, the source indicated that the power demands were much greater than historic demand when they opted to obtain a synthetic minor permit for purposes of Title V in 1994 and asked whether they could cancel their construction permit and return to grandfathered source status. The Division's initial opinion, documented in a January 17, 2001 letter to the source, indicated that the source could return to their grandfathered source status. The source submitted an updated Title V permit application on February 26, 2001 and also

requested that their construction permit be canceled. However, upon further review, the Division indicated to the source that this issue would be investigated further. A final approval construction permit was issued on July 12, 2001. After much internal discussion and discussions with EPA Region VIII, the Division concluded that since the engines did not undergo any physical changes or changes in the method of operation that would have triggered PSD review, the source could cancel their construction permit and revert to grandfathered source status for both PSD and Colorado construction permit requirements. The Division's opinion on this issue was transmitted to EPA, Region VIII in a letter dated November 1, 2001. The Division notified the source in a letter dated November 27, 2001 that they could cancel their construction permit and return to grandfathered source status for both PSD and Colorado construction permit requirements. On December 18, 2001 the source submitted a request to cancel their construction permit. As a grandfathered source, these engines are subject to the following applicable requirements:

- \$ Opacity shall not exceed 20%, except as provided for in Reg 1, Section II.A.4 (Reg 1, Section II.A.1)
- S Opacity shall not exceed 30%, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment or occasional cleaning of control equipment (Reg 1, Section II.A.4)

Based on engineering judgement the Division considers that building a new fire, cleaning of fire boxes and soot-blowing does not apply to the operation of these engines when burning No. 2 fuel oil. In addition, these engines do not have control devices, so adjustment or occasional cleaning of control devices do no apply to these units. Process modifications may apply to engines, however, based on engineering judgement, the Division believes that such activities would be unlikely to occur for longer than six minutes. Startup is an activity that applies to these engines, however based on engineering judgement the Division believes that startup for these engines is guick and lasts less than twelve (12) minutes. Under the Reg 1 30% opacity standard, one 6 minute interval in each hour while one of the specific activities is occurring is not subject to an opacity limitation. For the remainder of the hour, the opacity emissions are limited to 30%, however, the 30% opacity standard is based on a six minute average. Therefore, for an emission unit that takes less than twelve (12) minutes to start up, the 30% opacity standard is not applicable. Therefore, the 30% opacity requirement has not been included in the operating permit.

- \$ Sulfur dioxide emissions shall not exceed 0.8 lbs/mmBtu (Reg 1, Sections VI.A.1 & VI.A.3.b.(ii))
- \$ APEN reporting (Reg 3, Part A, Section II)

Note that in their Title V permit application, the source indicated that these engines were subject to the particulate matter emission limits in Reg 1, Section III.A.1, which sets particulate matter emission limits for fuel-burning equipment. The Division's Common Provisions Regulation defines fuel burning equipment as "any furnace, boiler, or other equipment and appurtenances thereto, burning fuel solely for the purpose of producing heat." It has been the Division's policy (see attached memo from Jim King, dated May 7, 1998) to consider that the fuel burning requirements do not apply to internal combustion engines because engines do not meet the definition of fuel burning equipment.

It should be noted that the Division conducted a final approval inspection for the initial approval construction permit (94OT647) on March 21, 1996. In the inspection report, the inspector indicated that during final approval the permit should be revised to specify that each engine can only run at 2 MW. Presumably, the inspector wanted this requirement in the permit because the stack test was conducted when the engines were running at maximum load (2 MW). The final approval construction permit that was issued on December 9, 1996 did not include such a requirement, nor did subsequent versions of this construction permit. Since the stack test results predict emissions above AP-42 emission factors and since this facility is no longer subject to emission limits designed to keep this facility out of the Title V permit program, the requirement to operate these units at maximum load will not be included in the operating permit.

**2. Emission Factors -** Emissions from these engines are from the combustion of fuel oil. The pollutants of concern are Particulate Matter, (PM and PM<sub>10</sub>), Nitrogen Oxides (NO<sub>X</sub>), Sulfur Dioxide (SO<sub>2</sub>), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC). Some hazardous air pollutants (HAPs) are generated through the combustion process, although emissions are minimal. Approval of emission factors for these units is necessary to the extent that accurate actual emissions are required to verify the need to submit Revised APENs to update the Division=s Emission Inventory.

The source proposed to use emission factors from stack tests and from AP-42. Note that emission factors are in units of lbs/gal. Emission data from stack testing was converted to a lbs/gal number by dividing the lbs/hr result by the fuel consumption rate during the test. The engines were tested at maximum load, which is equivalent to a hourly fuel consumption rate of 154 gal/hr. Emission data from AP-42 (Section 3.4, dated 10/96) was converted by dividing the lbs/mmBtu factor by 137,030 Btu/gal as indicated in footnote "a" of Table 3.4-1.

Pollutant	Emission Factor <sup>1</sup>	Source
PM	0.028 lbs/gal	April 20 - 21, 1995
PM <sub>10</sub>	0.028 lbs/gal	Performance Test,2 <sup>nd</sup> test on Engine 2 (4.26 lbs/hr)
SO <sub>2</sub>	0.138S lbs/gal	AP-42, Section 3.4, Table 3.4-1 (dated 10/96)

Pollutant	Emission Factor <sup>1</sup>	Source
NO <sub>X</sub>	0.81 lbs/gal	April 20 -21, 1995
		Performance Test, Engine 1
		average value (125.22 lbs/hr)
CO	0.13 lbs/gal	April 20 -21, 1995
		Performance Test, Engine 1
		average value (20.17 lbs/hr)
VOC	0.0112 lbs/gal	AP-42, Section 3.4, Table 3.4-
	_	1 (dated 10/96)

<sup>1</sup>S = weight percent sulfur in fuel

Note that the source indicated that they would use AP-42 emission factors for VOC, however, the AP-42 emission factor indicated by the source was inconsistent with the AP-42 emission factor in AP-42, Section 3.4, Table 3.4-1, so the permit specifies that the emission factor from AP-42, Section 3.4, Table 3.4-1 shall be used.

In addition, it should be noted that the stack test emission factors for PM, NO<sub>X</sub> and CO are more conservative that the emission factors in AP-42, Section 3.4.

3. Monitoring Plan - The source shall be required to monitor fuel consumption and calculate emissions from annually. The engines are not equipped with individual fuel flow meters, therefore emissions shall be based on facility wide fuel consumption. Since the engines are all the same make and model and the same emission factors are used for all engines, it is not necessary to calculate individual emissions from each engine. Fuel consumption shall be determined using fuel flow meters to determine fuel consumption. Annual fuel sampling shall be required to determine the heat and sulfur content of the fuel. In lieu of sampling, the source may retain a file of vendor invoices or certificates of quality reporting the heat value and the sulfur content of the fuel. EPA Reference Method 9 observations shall be required to monitor compliance with the opacity requirements.

Compliance with the SO<sub>2</sub> limitation (0.8 lbs/mmBtu) is presumed because using the AP-42 emission factor, compliance with the limitation is achieved provided the sulfur content of the fuel is less than 0.5 weight percent and the heat content is no less then 88,125 Btu/gal. Typically, off-road diesel fuel (No. 2 fuel oil) has a sulfur content no greater than 0.5 weight percent and generally, the heat content of No. 2 fuel oil is 140,000 Btu/gal. Therefore, in the absence of credible evidence to the contrary, compliance with the SO<sub>2</sub> emission limitation is presumed whenever No. 2 fuel oil is used as fuel.

**4. Compliance Status -** The source indicated in their Title V permit application that these units are in compliance with all applicable requirements.

## IV. Insignificant Activities

The source did not identify any general categories of insignificant activities but did identify the following specific insignificant activities:

<u>Units with emissions less than APEN de minimis - criteria and non-criteria reportable pollutants (Reg 3 Part C.II.E.3.a & b)</u>

Two (2) 60,000 gallon No. 2 fuel oil storage tanks

Note that these tanks would most likely also qualify for an insignificant activity under Reg 3, Part C, Section II.E.3.fff (storage tanks storing No. 2 fuel oil with an annual throughput less than 400,000 gal)

Unpaved public and private roadways (Reg 3 Part C.II.E.3.o)

No. of vehicles traveling to facility on gravel road is less than ten (10)

## V. Alternative Operating Scenarios

No alternative operating scenarios were requested for this facility.

#### VI. Permit Shield

The source requested the permit shield for those requirements it identified as not applicable to the emission unit. There are two permit shields that can be obtained for the Operating Permit. In general, the permit shield applies to the applicable requirements and states that compliance with the Operating Permit shall be deemed compliance with all applicable requirements specifically identified in the Operating Permit. If the source specifically requests and provides a justification, it can be shielded from requirements that are not applicable to the facility or to an emission unit. Because the source only identified applicable requirements and did not identify any non-applicable requirements that they wished to be shielded from, the Division did not include any specific non-applicable requirements in the permit shield.